

SERIOUS INCIDENT

Aircraft Type and Registration:	1) Fuji FA-200-180 Aero Subaru, G-HAMI 2) Cessna 172R Skyhawk, G-BXGV
No & Type of Engines:	1) 1 Lycoming IO-360-B1B piston engine 2) 1 Lycoming IO-360-L2A piston engine
Year of Manufacture:	1) 1973 (Serial no: FA200-188) 2) 1997 (Serial no: 17280240)
Date & Time (UTC):	23 June 2019 at 0955 hrs
Location:	Near Henley-on-Thames, Oxfordshire
Type of Flight:	1) Private 2) Private
Persons on Board:	1) Crew - 1 Passengers - 2 2) Crew - 1 Passengers - 3
Injuries:	1) Crew - None Passengers - None 2) Crew - None Passengers - None
Nature of Damage:	1) None 2) Damage to right wingtip
Commander's Licence:	1) Private Pilot's Licence 2) Private Pilot's Licence
Commander's Age:	1) 68 years 2) 76 years
Commander's Flying Experience:	1) 531 hours (of which 322 were on type) Last 90 days - 5 hours Last 28 days - 5 hours 2) 890 hours (of which 830 were on type) Last 90 days - 6 hours Last 28 days - 1 hour
Information Source:	Aircraft Accident Report Forms submitted by the pilots and further enquiries by the AAIB

Synopsis

Two aircraft had what was initially believed to be a near miss while giving air experience flights to disabled children at a multi-aircraft charity event. It was later discovered that the two aircraft had collided, with one aircraft sustaining minor damage, but both aircraft landed safely.

The investigation discovered that one of the accident pilots was asked to present the pilots' briefing at short notice. The briefing did not include a discussion of how all the participating aircraft would be deconflicted or how they would communicate. Neither aircraft had any form of Electronic Conspicuity.

The airfield that hosted the event has committed to take safety actions before hosting the event again.

History of the flight

Eight aircraft were participating in an annual charity event at White Waltham Airfield, Berkshire. The purpose was to give air experience flights to disabled children who were accompanied by a parent or carer. The airfield is situated in congested airspace, 11 nm west of Heathrow Airport, on the edge of the London controlled airspace. The route to be flown was predominately under controlled airspace with a base of 2,500 ft amsl. At the time Runway 07 was in use, the visibility was in excess of 10 km and there were scattered clouds at about 1,700 ft amsl.

Prior to the aircraft departing the pilots attended a briefing. As the Deputy Airfield/Safety Manager, who had given the briefing in the past at this event, was not available due to sickness, the pilot of G-BXGV was asked to conduct the brief “at the last minute”. This was because he had flown at this event previously, but no guidance was offered. In the brief he instructed the pilots to fly a counterclockwise route from White Waltham via visual reporting points November, Whiskey, Sierra and back to the airfield (Figure 1). They were reminded to keep a good lookout, given the number of aircraft involved, and communicate clearly when approaching the airfield. They were also told that should any passenger feel unwell they were to return to the airfield immediately.

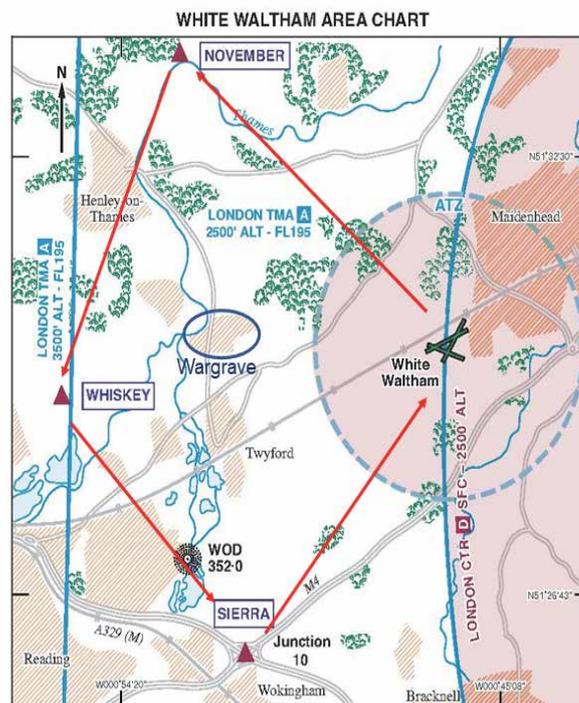


Figure 1

Briefed routing of flights

G-HAMI

The pilot of G-HAMI, a low-wing aircraft, stated that he took off at about 0940 hrs with one disabled child and his carer. He turned right downwind and departed the circuit initially flying west towards a point east of Wargrave, Berkshire, (Figure 1) before turning north

towards Point November. He believes he changed frequency from White Waltham's A/G radio frequency to listen on a Lower Airspace Radar Service.

When the aircraft was about 3 nm south-east of November, heading about 325°, he felt a "bump" beneath the aircraft that he believed was an air pocket. He continued with the route and landed uneventfully at about 1015 hrs. He did not hear an Airprox¹ being filed.

G-BXGV

The pilot of G-BXGV, a high-wing aircraft, stated he was allocated two disabled children and one adult carer for his first flight. Prior to engine start, one of the children became verbally and physically unsettled but was reassured by his carer. They took off at 0952 hrs, turned right downwind and departed the circuit on a north-westerly heading towards Point November, remaining on White Waltham's A/G radio frequency.

Once airborne the previously unsettled child became vocal. Fearing he may become physically disturbed again, the pilot decided to shorten the route by flying towards Henley-on-Thames, Oxfordshire. Shortly after leaving the Aerodrome Traffic Zone, while straight and level, the pilot noticed a bright red aircraft above, in his 8 o'clock position, converging on his aircraft. He then lost sight of it above and behind his aircraft's high-wing, becoming visual again when it was in his 1 to 2 o'clock position. It then was seen to descend before disappearing from his sight. He didn't have time to take avoiding action but filed an Airprox on White Waltham's A/G radio frequency. He continued the flight to Henley-on-Thames and Point Whiskey before returning to White Waltham without further event, landing at 1009 hrs (Figure 2).

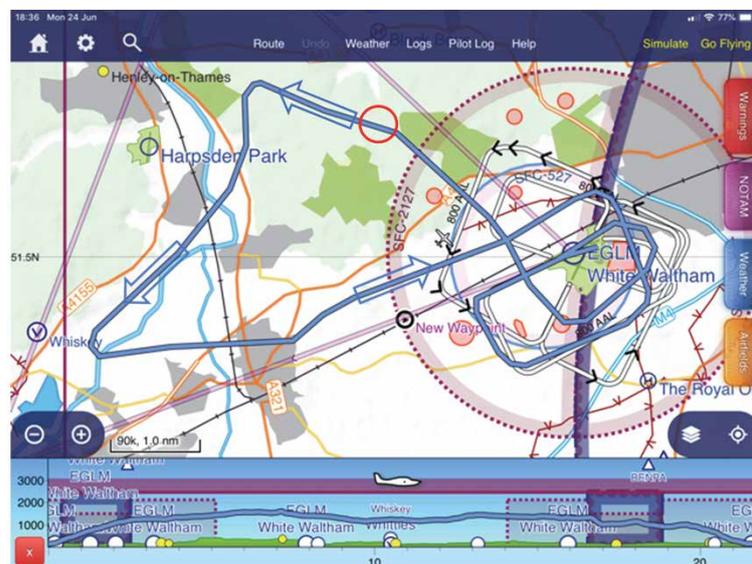


Figure 2

G-BXGV's routing
(Red circle indicates approximate location of collision)

Footnote

¹ An Airprox is a situation in which, in the opinion of a pilot, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised.

After landing, G-BXGV's pilot approached G-HAMI's and asked him if he had seen his aircraft while airborne, saying they had come within 20 to 50 ft of each other and he had felt G-HAMI's propwash; G-HAMI's pilot said he had not.

Both pilots then flew another flight without event. After landing, G-BXGV's pilot noticed damage to the aircraft's right wingtip (Figure 3). He then informed G-HAMI's pilot of it and that they must have collided in flight.

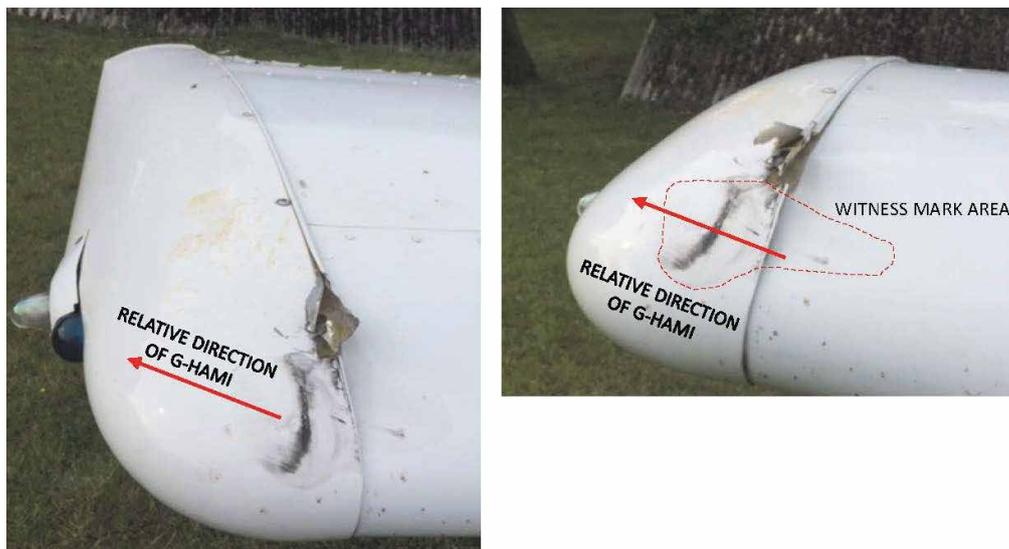


Figure 3

Damage to G-BXGV right wingtip

Pilots' comments

All pilots that flew during the event were contacted by the AAIB.

One pilot, who had flown at the event several times, commented that the event was not as well organised as usual and that not all the pilots that flew were at the briefing.

Aircraft equipment

Both accident pilots stated that their transponders were serviceable, and they were squawking code 7000. However, no secondary radar returns from either aircraft were recorded on the ground.

G-BXGV's pilot was using an electronic navigation aid. Its flight log was made available to the investigation. G-HAMI's pilot was not using an electronic navigation aid.

Neither aircraft had any form of Electronic Conspicuity (EC)².

Footnote

² The CAA's CAP 1391, *Electronic conspicuity devices*, provides more information about EC devices that have the ability to signal their presence to other airspace users:
https://publicapps.caa.co.uk/docs/33/CAP1391_E2_APR2018.pdf [Accessed 1 April 2020].

Aircraft examination

The damage to G-BXGV's right wingtip (Figure 3) was repaired soon after the accident and was not able to be examined by the AAIB. Analysis of the photographs indicated that the tyre of G-HAMI contacted the wing just inboard of the tip and moved outwards leaving the skid mark shown.

G-HAMI was inspected by the AAIB on 5 July 2019 while it was undergoing routine maintenance. No sign of damage was noticed by the maintenance organisation or the AAIB.

Airspace coordination notice (ACN)

An ACN³ is a means of notifying adjacent ATC units and other aerodrome users of events such as this where there are expected to be increased traffic volumes.

The airfield was aware of ACNs but did not consider applying for one for this event, because it did not consider the event would necessarily have made the airfield busier than usual over a summer weekend.

Organisational information

The charity

The charity's Director of Operations stated that it organises about 10 of these events each year, at airfields around the UK, and has been doing so for 10 years without incident.

While no formal risk assessment was completed, all airfields were visited annually to ensure arrangements were appropriate and properly managed. Discussions were held about the necessary domestic arrangements with the airfield managers, but they did not get involved with the operational aspects; the flying clubs arrange these. He added that he has removed one airfield from their schedule due to a "lackadaisical approach" to the event.

The airfield

The host airfield's Deputy Airfield/Safety Manager commented that while he had no set format for the briefing for this event, his briefing was based "loosely" on the briefing he gave pilots on their Members' Day. Subjects briefed included emergencies, deconfliction by different routes, distractions in the cockpit, the loading and unloading of passengers and the control of non-flying personnel while airside.

He added that the airfield will conduct a risk assessment before future events. They will also ensure that he, or another responsible representative from the airfield, is available to make a full and complete briefing, adopting the template of the Members' Day briefing. An overview of the flying will also be maintained throughout the event.

Footnote

³ Details on ACNs can be found here:
<https://www.caa.co.uk/Commercial-industry/Airspace/Event-notification/Airspace-coordination-notice,-large-balloon-releases-and-other-events/> [accessed July 2020].

The airfield has now installed a programme on a personal computer in its operations room that enables staff to see ADS-B and Modes S equipped aircraft, providing a general overview of the local flying area.

Since this system was installed it has been noted that a “surprising number” of aircraft, that are known to have Mode S transponders do not have them turned on, and that this may be because pilots fear the consequences of being observed infringing the surrounding airspace.

CAA comments

The CAA commented that it supports a ‘just culture’ when reviewing airspace infringements, as set out in CAP1404 ‘*Airspace infringements: Review and remedial actions process*’. It stated that education and retraining are the usual courses of action in the event of an infringement. In 2017, of 1,162 airspace infringements, five pilots were prosecuted (0.4%); in 2018 this figure was five out of 1,358 (0.37%) and in 2019, two out of 1,271 (0.16%).

Analysis

The charity event was operated from an airfield on the edge of London controlled airspace, and the route flown under controlled airspace, using the aerodrome’s standard visual reporting points as turning points. This increased the risk of a collision between participants and other aircraft by placing them in vertically restricted airspace and over geographical locations used for all departing and arriving aircraft.

The airfield did not apply for an ACN. Had it done so, it would have highlighted the event, and its routing, to surrounding aerodromes and aircraft that were not participating in the event, thus reducing the risk to all aircraft.

G-BXGV’s pilot was asked to conduct the briefing at the last minute, with no time to prepare and without being provided guidance, and the briefing did not appear to contain information that was sufficiently comprehensive to address the novel hazards of the event.

Pilots were advised to shorten the route if they were concerned for the welfare of their passengers. However, as deconfliction and escape routes were not briefed, a pilot electing to shorten the route had no premeditated strategy for avoiding aircraft flying the complete route. The pilot of G-BXGV decided to shorten the route not long after takeoff.

The pilots were briefed to communicate clearly when approaching the airfield, but there was no communication plan for aircraft while en route. As a result, it appears both aircraft were on a different frequency at the time of the accident, as G-HAMI’s pilot did not hear G-BXGV file the Airprox. Consequently, they would not have been able to communicate had they attempted to do so.

Secondary radar returns were not recorded from either aircraft. It is possible the pilots forgot to select their transponders ON. Neither aircraft had any form of EC. Had both transponders being working correctly and one aircraft had EC, the collision might have been avoided. Recordings of secondary radar might have given the investigation a better understanding of the circumstances of the collision.

The pilot of G-HAMI did not see G-BXGV before the collision and the pilot of G-BXGV only saw G-HAMI moments before. It is likely that both pilots were somewhat engaged with their passengers, which probably affected their lookout. As G-BXGV had a high wing and G-HAMI a low wing, both pilot's visual field in the direction of the other aircraft would have been obstructed.

Conclusion

The aircraft collided while taking part in a multi-aircraft charity event under and adjacent to controlled airspace where no form of deconfliction or a communication plan was briefed to the participants.

This accident highlights the importance of avoiding distractions, looking out and the benefits of employing electronic conspicuity, especially during multi-aircraft events in congested airspace.

There were no active controls to prevent the occurrence having a catastrophic outcome.

Safety actions

The host airfield stated that it will conduct a risk assessment before holding the event again. It will also ensure that the Deputy Airfield/Safety Manager or another responsible representative from the airfield is available to make a full and complete briefing, adopting the template of their Members' Day briefing. An overview of the flying will also be maintained throughout the event.

The owner of G-BXGV has fitted an EC device and linked it to the navigation software installed on his personal electronic device.